

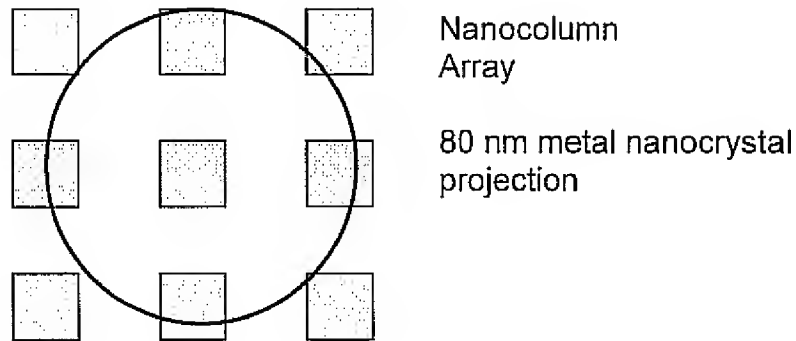
REMARKS

Applicant notes with appreciation the withdrawal of several bases for rejection in Paper No. 20100114. Please consider the following amendments and remarks in the context of a request for continued examination. By way of this amendment, claim 99 is amended to recite with greater specificity the nature of metallic nanocrystal nucleation along the lateral surfaces of nanostructured silicon columns. Support for this amendment is found in paragraph [0046] of U.S. Patent Application Publication US 2006/0141268 which corresponds to the pending application. As such, it is submitted that no new matter has been added to the application by way of this amendment. With this amendment to explicitly recite that the plurality of metal nanocrystals are spaced uniformly “along the lateral surface of each of said array of nanostructured silica columns”, the outstanding prior art rejections of record with respect to Debe under 35 U.S.C. §103(a) with respect to claims 99-102 and 104, and claims 99 and 101-104 also under 35 U.S.C. §103(a) over Sun et al. in view of Zhang et al. are believed to have been overcome as the remarks of record make clear that neither of these references affords such spacing of metallic nanocrystals. In this regard, Applicant hereby incorporates by reference the remarks made of record on December 28, 2009, with respect to these rejections.

Additionally, pending claims 105 and 107-110 remain rejected under 35 U.S.C. §112, first paragraph, on the basis that the nanocolumns themselves are not visible under the nanocrystals in Fig. 6, 90 second panel, as well as the size of the nanocolumns being 20 nanometers as is the intercolumn spacing.

In response to this remaining basis for rejection, the Examiner’s attention is directed to paragraph [0042] of the published application that states “An array of 20-30 nm wide nanocolumns with an average separation of 20 nm is seen ...”.

Assuming the 80 nanometer particle observed on the top surface of the array is spherical and that the metallic nanocrystal nucleated and grew on 20 nanometer square silicon columns separated from one another by voids of 20 nanometers, it would appear schematically in top view as follows:



This schematic makes clear that the 80 nanometer nanocrystal resting only on the central nanocolumn is structurally unstable; and even assuming no interaction between the silicon column and the metal nanocrystal, such a large nanocrystal would be structurally more stable to come to rest at an interstitial position with the center of the nanocrystal over an interstitial space between four contiguous columns.

However, one of ordinary skill in the art would recognize that as nucleation and growth of the metal nanocrystal is initiated and the silicon column producing metal salts in solution surrounding the column that such an 80 nanometer nanocrystal would have a flattened interface with the silicon column. Additionally, a growing metallic nanocrystal upon coming into proximity with a second silicon nanocolumn would readily join a second nanocrystal propagating from the top surface of the second silicon nanocolumn. As such, it is submitted that one of ordinary skill in the art would recognize from the application as filed that large metal nanocrystals extending from the top surface of a silicon column array would not be cantilevered

from a single column but instead rest atop multiple such columns as recited in pending claims 105 and 107-110.

Summary

By way of this amendment, claim 99 has been amended, and claims 99-105 and 107-110 remain pending in the application. These claims are believed to now be in allowable form. Reconsideration and withdrawal of the outstanding rejections and the passing of this application to allowance are requested. Should the Examiner have any suggestions as to how to improve the form of any of the pending claims, it is respectfully requested that the undersigned attorney in charge of this application be contacted at the telephone number given below.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 07-1180.

Dated: March 1, 2010

Respectfully submitted,

By: /Avery N. Goldstein, Ph.D./
Avery N. Goldstein, Ph.D.
Registration No.: 39,204
GIFFORD, KRASS, SPRINKLE, ANDERSON
& CITKOWSKI, P.C.
2701 Troy Center Drive, Suite 330
Post Office Box 7021
Troy, Michigan 48007-7021
(248) 647-6000
(248) 647-5210 (Fax)
Attorney for Applicant